Improving Primary Numbers Multiplication Skills in Slow Learner Children: Using the Cover, Copy and Compare (CCC) Method

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Abstract

This study aims to prove that the cover, copy and compare (CCC) method effectively improves the ability to multiply basic numbers in slow learner children. This research design is a quasi-experiment where each subject is measured repeatedly both before and after the CCC method is applied. The research subjects amounted to 3 children whose intelligence abilities had been measured and included in the category of Slow learner children. The research data were analyzed using the Paired Sample t Test statistical test. The results showed an increase in the average ability of basic number multiplication before and after treatment. This study also found a positive difference in the ability to multiply basic numbers in slow learner children before and after the application of the CCC method with a significance value of $p<0.05$ based on the Paired Sample t Test. The findings of this study prove that the cover, copy and compare (CCC) method is effective in improving basic number multiplication skills in slow learner children.

Keywords Children, Cover Copy and Compare (CCC), Slow Learner
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INTRODUCTION

Providing effective learning for slow learners should get serious attention from the government, educators and society. The term slow learner in reality is still not as popular as terms we often hear such as autism, hyperactive children, mental retardation or children with special intelligence (Afzal et al., 2021; Hasibuan et al., 2022). Slow learners are identified based on the achievement of scores in intelligence tests with scores between 75-89 (Malik et al., 2012; Ru'iya et al., 2023). However, to identify slow learner children is not only based on IQ ability, but there are several characteristics that can be observed to understand slow learner children.

According to Chauhan (2011) the characteristics of slow learner children that can be known through the observation process are as follows: (1) Having limited cognitive abilities, (2) forgetting easily, (3) lack of concentration, (4) and less able to convey ideas and opinions. Furthermore, the characteristics of slow learner children can also be identified based on: (1) low intelligence ability (below average), (2) limited attention and concentration, (3) limited ability to self-direct, (4) limited ability to abstract and generalize, (5) the time to learn and explain lessons is long enough, but cannot last long in memory, (6) lack of ability to find mistakes made, (7) lack of ability to describe, analyze or solve a problem or think critically and (8) lack of ability to use high mental processes (Chauhan, 2011; Cleugh, 2021).

Basically, slow learner children do not have a big difference with other children, however, slow learner children tend to be slow and often get annoyed by their classmates due to their delays (Cleugh, 2021; Sovia, A., & Herman, 2020). Seeing the characteristics and characteristics of slow learner children, it is very important to recognize the difficulties experienced by slow learner children

in learning or learning something because this ultimately greatly affects their self-confidence, causing them to be easily anxious, have a negative self-concept and give up easily (Ng, S. W., & Kwan, 2020).

One of the subjects that must be mastered by slow learner children is math (Khaira, U., & Herman, 2020). Mathematics is very important for slow learner children to learn because mathematics has a role in various disciplines, so that, ability in mathematics can be used as an indicator of success in other academic fields (Hasibuan et al., 2022). In addition, mathematics also functions to develop the ability to communicate using numbers and symbols and help in clarifying and solving problems in everyday life (Sovia, A., & Herman, 2020). In learning mathematics in elementary school children, it is important to master the basics of mathematics such as basic number multiplication (Listiawati et al., 2023; Wortha et al., 2023).

Multiplication is the main basic arithmetic operation that children should learn after they have learned the operations of addition and subtraction. Skarr et al. (2014), stated that the basis of all elementary level math calculations is multiplication with results less than 100. While Berg-Mortensen et al. (2022), define multiplication as a mathematical operation that multiplies one number with another number to produce a definite value. Thus, multiplication can also be understood as repeated addition with the same number and is given at the elementary school level.

The ability of children to master and memorize the multiplication of basic numbers is different especially when this material is given to slow learners. According to Kurniasih & Wanabuliandari (2020), as with language, reading and writing, children's difficulties in learning mathematics must be overcome as early as possible because almost all fields of study require skills in mathematics. Based on studies that children lack academic ability when entering grade III of elementary school are expected to experience failure and even be expelled from school (Afzal et al., 2021; Hasibuan et al., 2022).

According to the results of interviews conducted with the homeroom teacher III related to learning for slow learner children, it is known that the difficulty experienced is when teaching multiplication to slow learner children, this is evidenced by the results of daily tests in mathematics subjects that are low when compared to other subjects and this is greatly influenced because the subject matter in class III really requires children's ability to master and memorize basic number multiplication. Seeing the reality that exists, slow learner children need to get treatment related to their problems that have not mastered or memorized the multiplication of basic numbers. This is so that slow learner children do not fall behind with other children. Therefore, the right teaching method is needed in improving the ability to multiply basic numbers to slow learner children.

The provision of lessons that can be given to slow learner children is with remedial teaching (Chauhan, 2011; Poindexter et al., 2012). Remedial teaching is given to slow learner children outside of learning activities at school so that slow learner children are expected to be able to catch up. In addition, remedial teaching is also useful for increasing the self-esteem of slow learner children (Hubbert et al., 2000). The implementation of remedial teaching provides an opportunity to apply effective teaching methods to improve the basic number multiplication skills of slow learner children. One intervention method that has been proven to be efficient in improving multiplication skills is the cover, copy and compare method (Carter et al., 2011). However, the effectiveness of the CCC method in improving multiplication is still limited to children with average intelligence.

The CCC method is considered to be an appropriate method because it allows children to get immediate "feedback" (reinforcement) on the problems given and trains children to correct their mistakes immediately (Skinner et al., 1997; Stone et al., 2002). In addition, the CCC method also involves the process of encoding, retaining in memory or storage and responding quickly in practice (Darrow et al., 2012). The strength of the CCC method when applied to slow learner children is that the CCC method is a method whose application is in accordance with the strengths of slow learner children, namely their high performance in concrete information, does not require high mental processes in its application, is able to increase self-confidence, foster motivation, and self-evaluation.

In addition, this method can also be applied individually so it is very suitable when given to slow learner children who basically need individual attention in their learning (Chauhan, 2011).

Some of the advantages of using this method are that it provides immediate feedback (reinforcement), increases children's ability to answer questions correctly (Poindexter et al., 2012) It is very efficient in the use of time, allowing children to organize their academic tasks (Membrey et al., 2011) and can be given daily and during breaks or when children have free time (Hollingsworth et al., 2012). It is also considered an easy-to-use method for children to practice and learn basic information such as basic number multiplication and can be used by teachers, parents and children in almost all areas of education (Darrow et al., 2012).

Rationale of Study

The whole process of the CCC method that provides rewards and punishments is very beneficial for slow learners. The reward given is that slow learner children are allowed to work on the next problem if they can copy back the problem correctly. Giving rewards will greatly motivate slow learner children to return to doing the next problem correctly. One of the shortcomings of slow learner children is that they are less motivated in learning something, so if this method is able to realize the ability of slow learner children to their abilities, then the ability to multiply children's basic numbers can be improved by using the CCC method. Based on the description above, it is necessary to conduct research to see the process of applying the CCC method and the effectiveness of its application in improving the ability to multiply basic numbers in slow learner children.

Aims and Hypotheses

The purpose of this study was to determine the effectiveness of the application of the cover, copy and compare (CCC) method to improve the ability to multiply basic numbers in Slow learner children. The hypothesis in this study is that there is a difference in the ability to multiply basic numbers in slow learner children before and after remedial teaching by applying the cover, copy and compare (CCC) method.

METHOD

Research Design

This study uses the Quasi Experiment method with interrupted time series design to see the effectiveness of applying the CCC method in improving the ability to multiply basic numbers in slow learner children (Hastjarjo, 2019).

Population and Sampling

The criteria for the subjects of this study were 3 children who were identified as *slow learners* using the WISC (Wechsler Intelligence Scale for Children) intelligence measurement and were in grade III of elementary school.

Instrumentation

Each subject in this study was asked to fill in the answers of 90 basic number multiplication questions (multiplication list 1-9) during the *pre-test* and 90 basic number multiplication questions during the *post-test.*

Data Analysis

The data analysis used to analyze the results of this study is quantitative analysis. The quantitative analysis used is individual analysis through graph analysis by comparing the pre-test and post-test results while hypothesis testing uses paired sample t test to see the difference in basic number multiplication skills before and after remedial teaching using the CCC method.

RESULTS AND DISCUSSION

Results

Overall, based on Figure 1, the acquisition of basic number multiplication skill scores for each subject shows an increase after being given *remedial teaching* using the CCC method. Furthermore, researchers measured the average value of basic number multiplication skills in the three research subjects and the following is the difference in mean values for each measurement both before and after the implementation of *remedial teaching* using the CCC method.

Based on the figure above, it can be concluded that the mean or average value of measuring the ability to multiply basic numbers both before and after being given remedial teaching using the CCC method shows an increase in the three research subjects. Then the researcher conducted hypothesis testing to measure the effectiveness of the application of the CCC method to improve the basic number multiplication skills of the three research subjects and the results are shown in Table 1.

The results of hypothesis testing show a p value <0.05 where the p value $= 0.042$, this shows that there is a positive difference in the ability to multiply basic numbers from the provision of *remedial teaching* using the CCC method before and after the treatment of the three research subjects. Thus this study proves that the cover, copy and compare (CCC) method is effective in improving the ability to multiply basic numbers in slow learner children.

Discussion

Based on the results of research and hypothesis testing using the Paired samples Test statistical test, the results show that the application of the CCC method is quite effective for improving the ability to multiply basic numbers, especially for slow learner children. This proves that the hypothesis in this study is accepted. The results obtained in this study also prove that the CCC method can be applied to the three subjects in this study.

The CCC method is a method that uses the principle of trial and error in its application. The law of varied reactions explains that a person's learning behavior is also always preceded by a process of trial and error. (Shapiro, 2010; Subini, 2012).. The principle of trial and error allows each subject in this study to learn to correct their mistakes. This study shows that when making a mistake, the subject will realize the location of the mistake and automatically correct the mistake and try again to solve the problem and answer correctly. This can explain that each subject in this study has carried out a self-evaluation process.

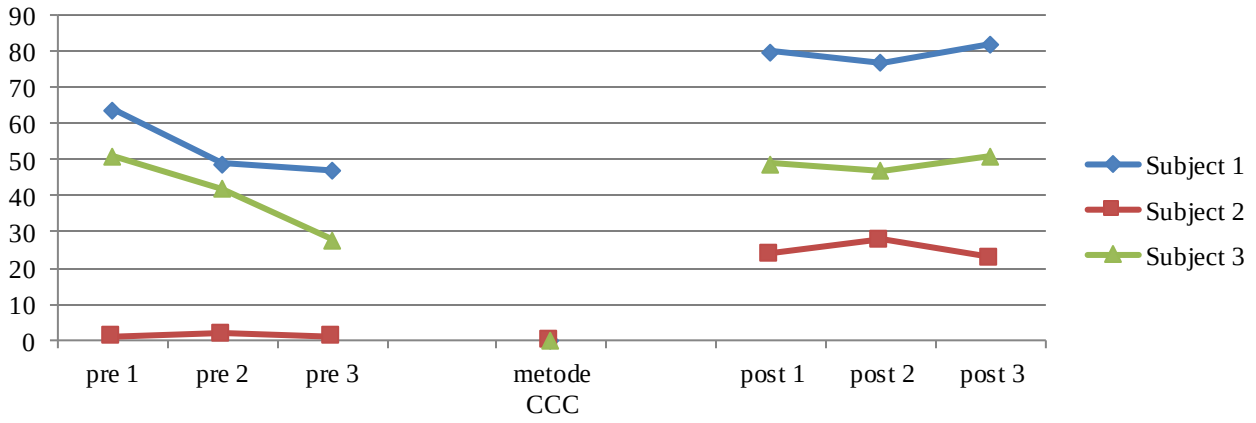

Figure 1. Subject 1, 2, and 3 score acquisition

Table 1. Statistical test results of *paired sample t test*

Results	N	Mean		
		1	2	3
Pretest	3	38.67	31	25.33
Posttest	3	51	50.67	52
t		-4,724		
p		<0,05		

The process of self-evaluation that occurs in subjects is a positive result caused by effective punishment of each subject in this study. According to the Law of effect, if punishment can be given or effective in weakening the tendency to do something, it is because punishment produces other varied behaviors that produce new responses to get rewards (Hollingsworth et al., 2012). The subject's awareness of the mistakes he made resulted in a self-evaluation process which was then able to improve the basic number multiplication skills of each subject in this study. According to Skinner et al. (1997), the CCC method allows children to be given immediate feedback (reinforcement) on each problem given and trains children to correct their mistakes immediately.

In addition to punishment, the CCC method also provides rewards if children can answer problems correctly. Giving rewards basically in addition to improving the ability to multiply basic numbers also increases the subject's motivation in mastering basic number multiplication by trying to do the problem correctly. According to Membrey et al. (2011), when children apply the CCC method in their learning process, not only does their ability improve, but children will become more motivated to work on problems according to their abilities. This study proves that the three subjects were motivated to work on problems correctly and according to their respective abilities. Unlike the conditions at the time of the pre-test, the subjects in this study no longer asked questions about the accuracy of the answers given and did not cover up their answers during the post-test. Each subject in this study looked calmer in trying to fill in the answers to the problems given during the post-test according to the abilities of each subject.

Through the CCC method, each subject in this study was given the opportunity to directly practice the subject matter provided and find the mistakes they made. For slow learner children, one of the efforts that can be made so that it can help in the learning process is to provide instructions with concrete and efficient concepts (Chauhan, 2011). This is based on the difficulty of slow learner children in understanding abstract concepts. The CCC method which in practice involves the process of encoding, remembering or retaining in memory and responding quickly (Poindexter et al., 2012) can help slow learner children improve their multiplication skills.

Each subject in this study did not experience difficulties in learning basic number multiplication using the CCC method, so that each session carried out went quite well and was fun for the child. The results of this study are strongly supported by the results of research conducted by Becker et al. (2017), which also shows that children enjoy the teaching and learning process at school and make children diligent in going to school. This is strongly related to the nature of the CCC method which is considered an easy-to-use method for slow learners to practice and learn about basic information such as basic number multiplication and can be used by teachers, parents and children in almost all areas of education (Shapiro, 2010). In addition, the CCC method can be used by parents and teachers in teaching basic number multiplication to their students and children in a way that is easy, efficient, not costly and fun. The CCC method is in line with one of the approaches in mathematics teaching that emphasizes learning mathematics through direct and structured learning (Malik et al., 2012; Poindexter et al., 2012).

The increase in abilities possessed by each subject in this study shows the success of the application of the CCC method as remedial teaching to teach basic number multiplication to slow learner children. The cover, copy and compare process which not only applies a behavioral approach

but also involves cognitive processes makes this method show improvement in the application process (Becker et al., 2017; Membrey et al., 2011). Furthermore, according to Subini (2012), one of the laws that apply in a person's learning process is the law of attitude. In the law of attitude, it is explained that a person's learning behavior is not only influenced by stimulus and response, however, there are other factors that also determine the results such as the state that exists within the individual in terms of cognitive, emotional, social, and psychomotor. This proves that the application of the CCC method involves two psychological approaches that synergize with each other and are ultimately able to improve the ability to multiply basic numbers in slow learner children.

In addition to the advantages, the CCC method also has disadvantages, including that this method cannot be applied to teach slow learner materials that involve the ability to understand. In addition, because the response is determined by the child's ability to remember, this method is very difficult to apply for complex tasks or requires high mental processing (Becker et al., 2017; Darrow et al., 2012; Membrey et al., 2011). In addition, Skinner et al. (1997), also explained that by requiring children to correct their mistakes when children make mistakes, children tend to avoid correcting their mistakes by cheating or acting not in accordance with predetermined procedures. This study shows findings that are in line with previous research on the shortcomings of the CCC method, which shows that the subjects in this study tried to avoid repeating the CCC process by lifting the HVS paper that covered the problems and answers and trying to make an agreement with the experimenter to correct the mistakes they made and move on to the next problem without repeating the CCC process.

Implications

The use of the CCC method has proven effective for each subject in this study, so the CCC method can be used as an alternative remedial teaching method or classroom learning method by teachers to teach basic number multiplication to slow learner children.

Limitations and Future Research Direction

For researchers who will conduct research related to the application of the CCC method, they should also pay attention to the problem of time use in its application. In addition, it is also necessary to conduct research on the application of the CCC method in other fields of science, including research on the application of the CCC method in teaching children to read at the beginning or research in the field of natural science.

CONCLUSION

Based on the results of the research that has been carried out, it is concluded that the CCC Method is one of the remedial teaching methods that is quite well used to increase the multiplication of basic numbers to each subject in this study. In addition, the CCC Method is an easy and efficient method for each subject in this study so that each subject can apply the CCC method well and there is an increase in the ability to multiply basic numbers for each subject. Furthermore, the shortcomings of the CCC method are that each subject is easily bored in the implementation of the CCC method, each subject tries to negotiate with the experimenter to immediately complete the tasks given.

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